

What is claimed is:

1. A process for delivering a polynucleotide into a parenchymal cell in a mammal, comprising: transporting the polynucleotide into a vessel communicating with the parenchymal cell of the mammal such that the polynucleotide is transfected into the parenchymal cell.
2. The process of claim 1 wherein the vessel contains a fluid.
3. The process of claim 1 wherein the polynucleotide is selected from the group consisting of RNA and DNA.
4. The process of claim 3 wherein the polynucleotide provides a code for expressing a polypeptide within the parenchymal cell.
5. The process of claim 4 wherein the polypeptide is a protein.
6. The process of claim 2 wherein the vessel is a blood vessel having a permeable wall.
7. The process of claim 6 wherein the blood vessel is from the group consisting of afferent and efferent vessels.
8. The process of claim 6 wherein the permeability of the blood vessel wall is increased to allow the polynucleotide to be delivered more efficiently.
9. The process of claim 7 wherein the blood vessel is an efferent vessel.
10. The process of claim 8 wherein the permeability is increased by a method selected from the group consisting of: increasing hydrostatic pressure on the blood

vessel wall, increasing osmotic pressure on the blood vessel wall and introducing a biologically-active molecule to the blood vessel wall.

11. The process of claim 10 wherein the osmotic pressure is increased by introducing a hypertonic solution to the blood vessel.

12. A process of claim 10 wherein the hydrostatic pressure is increased by obstructing outflow from the blood vessel.

13. A process for delivering a coded polynucleotide into a parenchymal cell of a mammal for expressing a protein, comprising:

- a. transporting the polynucleotide to a vessel containing a fluid and having a permeable wall; and,
- b. increasing the permeability of the wall for a time sufficient to allow delivery of the polynucleotide.

14. The process of claim 13 wherein the vessel is a blood vessel having intravascular pressure and a fluid outflow.

15. The process of claim 14 wherein permeability is increased by increasing the intravascular pressure to the vessel.

16. The process of claim 15 wherein increasing the intravascular pressure is performed by a method selected from the group consisting of: increasing a hypertonic pressure and increasing a hydrostatic pressure on the vessel wall.

17. The process of claim 15 wherein the hydrostatic pressure is increased by obstructing the outflow of the fluid from the vessel.

18. The process of claim 13 wherein the permeability is increased by introducing a biologically-active molecule to the vessel.

19. The process of claim 13 wherein the polynucleotide is selected from the group consisting of RNA and DNA.

20. The process of claim 13 wherein the polynucleotide is a naked polynucleotide.